U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL WEATHER SERVICE
Silver Spring, Md. 20910

March 28, 1985 W/OTS141 - HGH

TO: All NWS Regional Headquarters, Area Electronics Supervisors, and Electronics Technicians (EHB-7 Distribution)

FROM: W/OTS1 - J. Michael St. Clair

SUBJECT: Transmittal Memorandum for Engineering Handbook No. 7, Issuance 85-2

1. Material Transmitted:

Engineering Handbook No. 7, Communications Equipment, Section 3.4, Modification Note 20: NOAA Weather Radio Transmitter (B222) Bypass Tone Alarm Modification.

2. Summary:

Modification Note 20 incorporates changes in the B222 transmitter (dual transmitter only) to alter the audible tone alarm to indicate which exciter is being used when the power amplifier is bypassed.

3. Effect on Other Instructions:

None.

4. Certification Statement:

This modification has been successfully field tested at Beaumont, Texas.

5. Reporting Modification to WSH Engineering Division:

Target date for completion of this modification is May 1, 1985.

All completed equipment modifications shall be reported on the Form H-28 (see atached exhibit), Engineering Progress Report, according to instructions contained in EHB-4, Part 2.

EHB-7
Issuance 85-2

COMMUNICATIONS EQUIPMENT MODIFICATIQN NOTE 20
(For Electronics Technicians)

SUBJECT : NWR Transmitter B222 Bypass Tone Alarm

PURPOSE : To incorporate changes in the NWR B222 transmitter (dual transmitter only) to alter the audible tone alarm to indicate which exciter is being used when the power amplifier is bypassed.

EQUIPMENT AFFECTED : All NWR B222 Transmitters that are used in dual systems

PARTS REOUIRED :

Quantity	Description	Part No,
2 ea	Assembly, Tone Alarm Bypass	402975
2 ea	Washer, Flat #4	H0400G
2 ea	Lockwasher, Split #4	H04003
2 ea	Nut, Hex 4-40	H04000
2 ea	Screw, Pan Head #4 x 7/8"	H04144
6 ea	Screw, Pan Head #4 x 5/26"	H04054

MOD PROCUREMENT : Request modification kits through special projects. Send stores requisition (NOAA Form 37-4) to NWS Engineering Division, W/OTS141, Attn: Communications SPL.

SPECIAL TOOLS REQUIRED : None

TEST EQUIPMENT REQUIRED : None

TIME REQUIRED : 2 work hours

General:

This document provides the information necessary for installing the 402975 Bypass Tone Alarm in the SR-402RA Remote Control Unit. This modification note applies only to those SR-402RA Remote Units installed in SR-416D (B222) Dual 1 KW VHF Transmitter Systems.

The Bypass Tone Alarm Assembly provides an audible tone alarm signal to indicate which exciter is being used when the power amplifier is bypassed. The circuit provides one beep if the primary exciter is in operation and two beeps to indicate secondary exciter operation. The alarm circuit will automatically be disabled upon normal restoration of operation. The Bypass Tone Alarm is shown schematically in Figure 5 and component locations are illustrated in Figure 4.

Procedure:

To install the 402975 Bypass, Tone Alarm Assembly, proceed as follows:

1. Modify transmitter not in use. Disable transmitter power.
2. Extend remote control panel and remove top cover.
3. Remove the hardware holding down the cable harness ty-wrap located in the front right corner of the SR-402RA. The hardware can be discarded as new hardware is provided with this field installation kit. The Bypass Tone Alarm PC Board Assembly is to be installed using the four unused holes on the right side of the chassis. Refer to Figure 1.
4. Place the Bypass Tone Alarm PC Board over the unused holes. Refer to Figure 1.
5. The Bypass Tone Alarm PC Board is mounted using the hardware supplied with the field install kit, The #4 x 7/8 pan head screw is installed from the underside of the chassis through the threaded staked standoff located in the left front corner of the 402975 PC Board Assembly, refer to Figure 1. The screw should be inserted fully so that cable harness ty-wrap removed earlier can be re-installed on this screw.
6. Install the remaining three (3) #4 x 5/16" pan head screws from the underside of the chassis into the threaded staked standoff on the board, refer to Figure 1.
7. Reinstall the cable harness hold down ty-wrap over the front left 7/8" screw using the #4 lockwasher, flatwasher and hex nut provided.
8. Remove capacitor C8 from the Remote Control Assembly A1 and discard. C8 is located to the left of U3, refer to Figure 2.

9. Remove integrated circuit U3 (P/N 402978, Quad OP Amp LM249) from the Remote Control PC Board Assembly, refer to Figure 2. Install U3 in the spare socket on the Bypass Tone Alarm Assembly, refer to Figure 4. Install connector A2W1P2 in the socket formerly occupied by U3. U3 should be saved for backup purposes in case of failure of the bypass tone alarm assembly. It may be reinstalled into its original location so operation of the system can be restored until the bypass tone alarm is repaired. In such a case, replacement of C8 is not required.

10. Ensure that the primary/secondary transmitter connectors (J2/P2) on both the Remote Control PC Board Assembly (A1P4) and the Bypass Tone Alarm Assembly (A2P2) are configured as shown on Figure 3. This will ensure that the low power alarm tone properly identifies the transmitter in use. The bypass assembly shown in Figure 4 is configured to identify the secondary transmitter.

11. Reinstall the Remote Control top cover. Insert unit back into the rack cabinet.

12. Apply power to the transmitter. Check for proper operation of the bypass tone alarm and ensure that the level of the tone alarm is sufficient to be heard.

13. Transfer operation to modified transmitter, and repeat modification Steps 1 through 13.

14. This completes installation of the Bypass Tone Alarm Assembly.

Equipment Support:

Post modification repair and support of this equipment will be handled through the Scientific Radio Systems depot facilities just as B222's are now.

Instruction Manual Changes:

Page 14-13. Pen and ink the removal of C8 on the Remote Control Board Assembly A1. (Figure 14-4). This notation should be on Dual System Transmitters only.

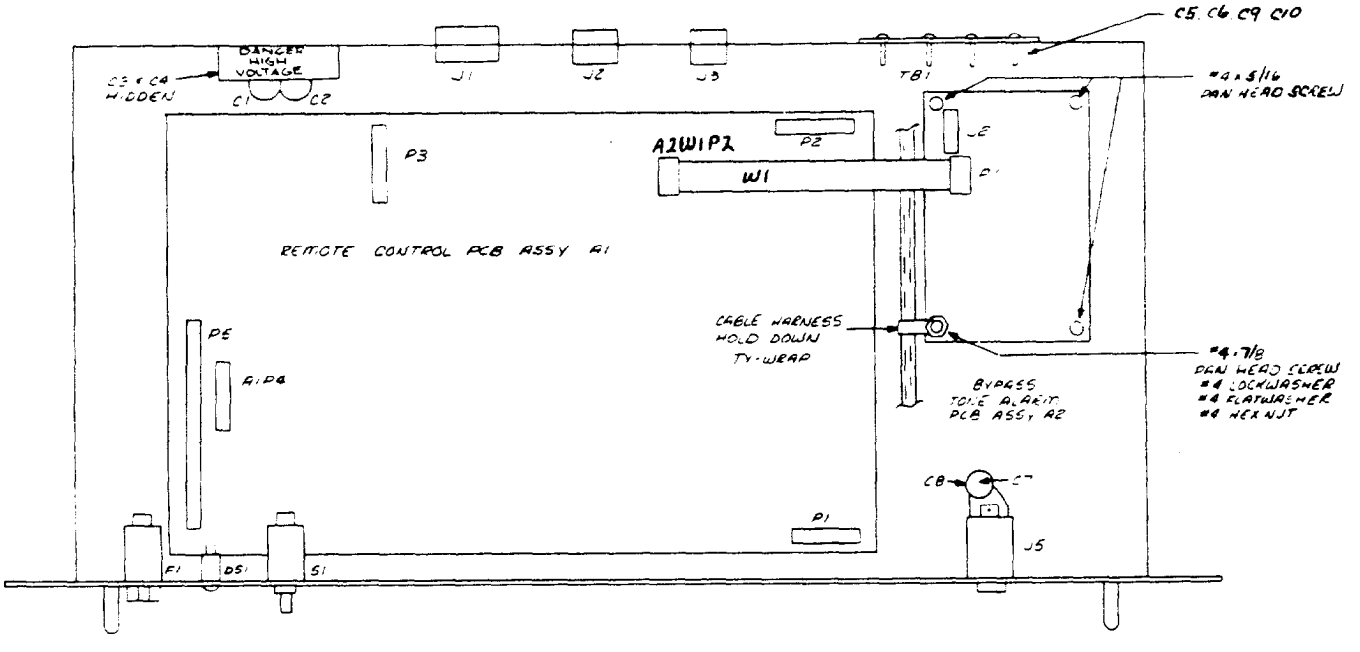


Figure 1. Remote Control Unit Chassis, Component Locations

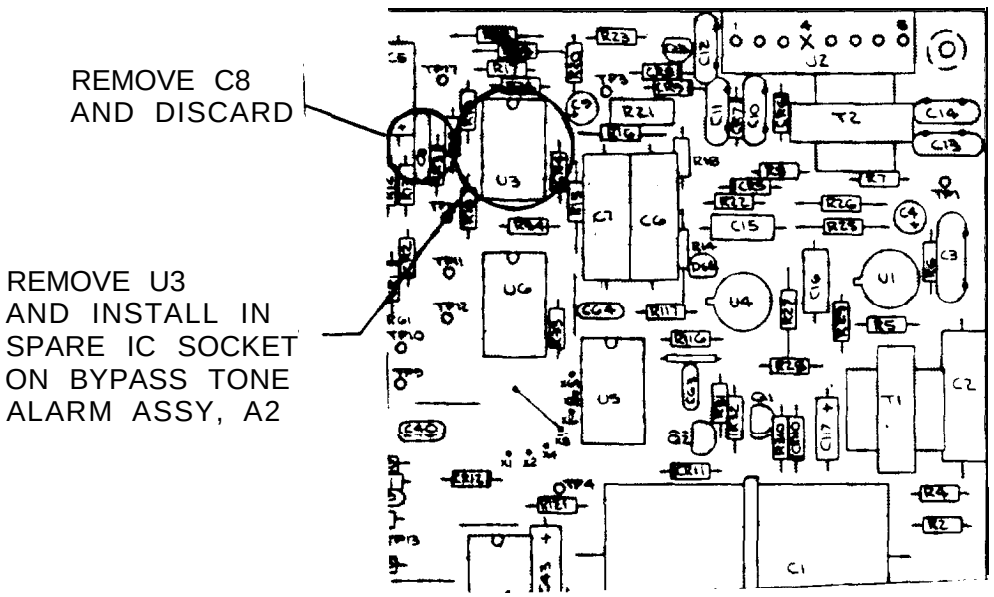


Figure 2. Remote Control PC Board Assembly, Right Rear Corner

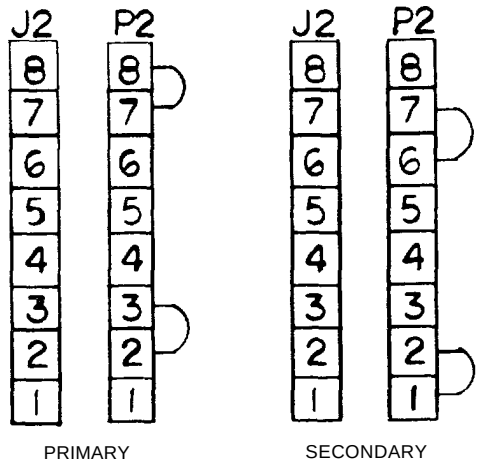
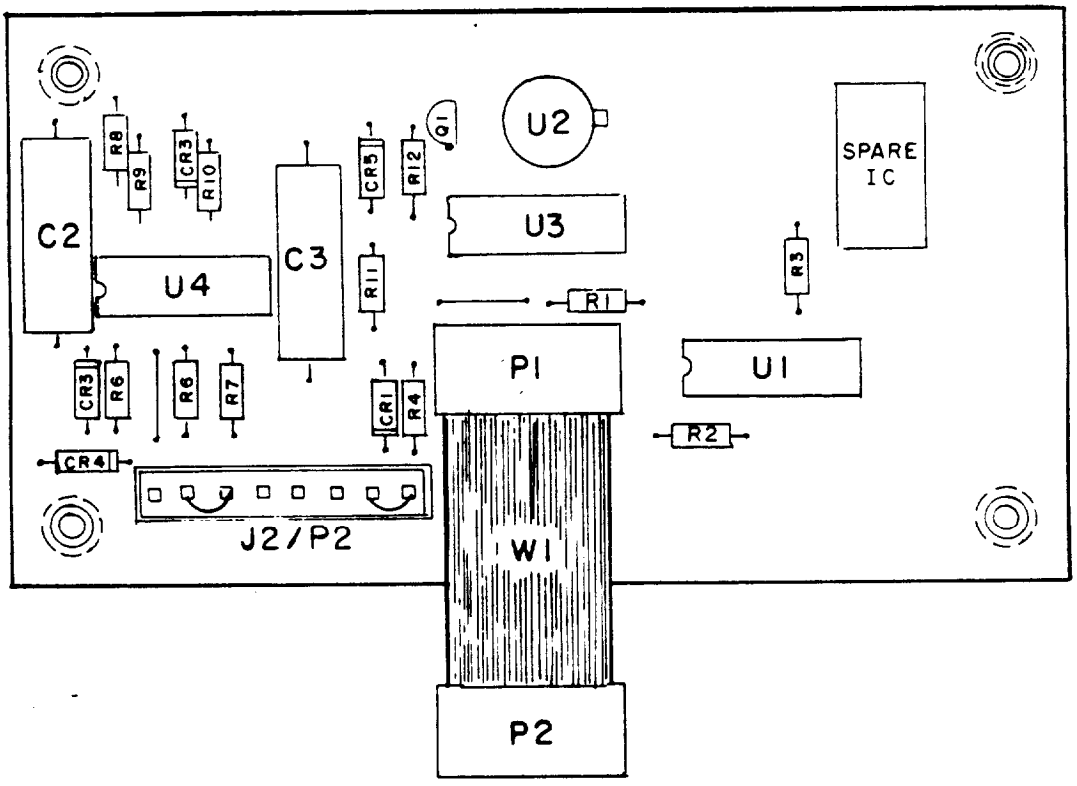


Figure 3. Primary /Secondary Jumper, As Viewed Front Front of Chassis



BYPASS TONE ALARM PC BOARD ASSEMBLY, COMPONENT LOCATIONS

FIGURE 4

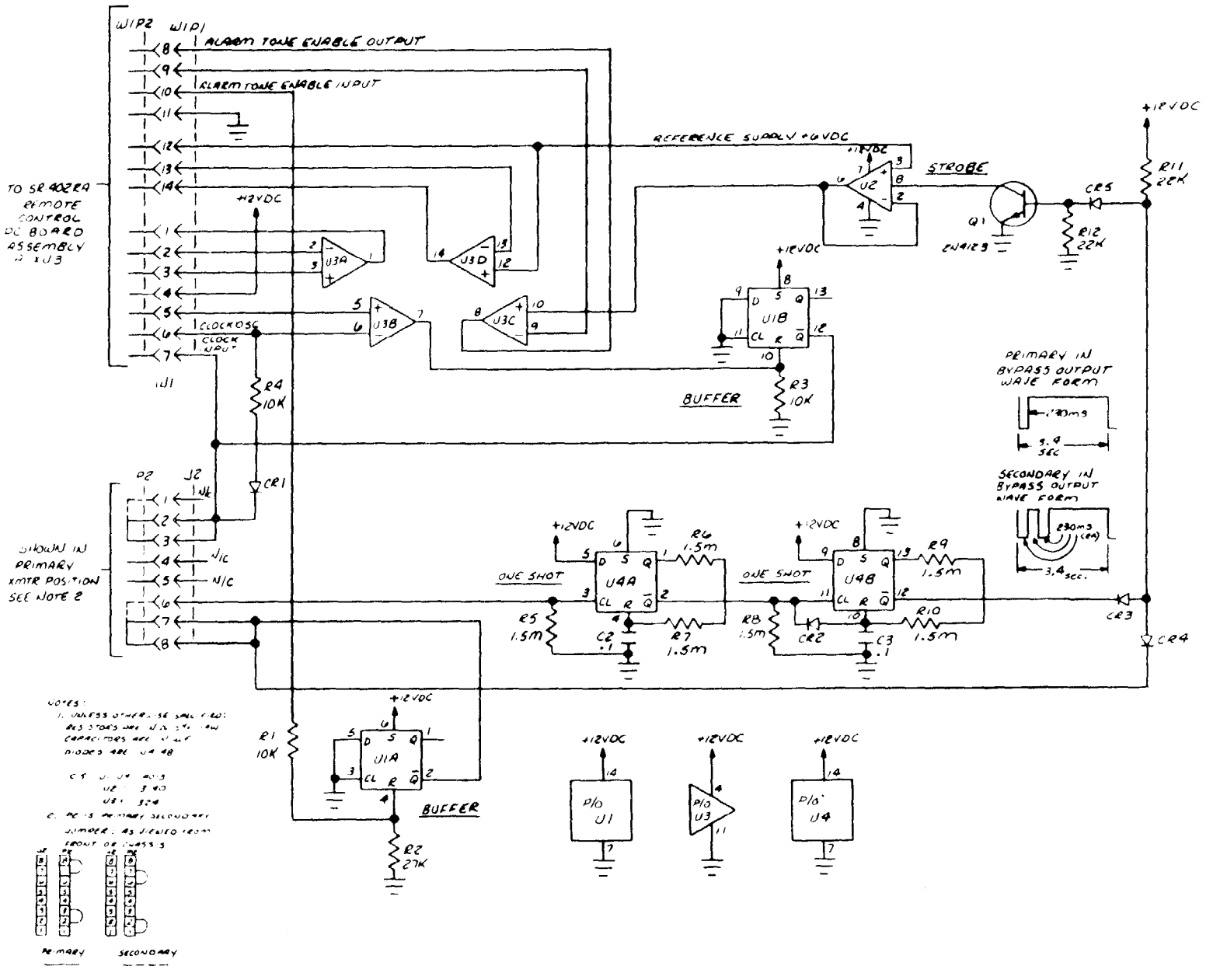


Figure 5. Bypass Tone Alarm Assembly, Schematic Diagram

REF DESIG	DESCRIPTION	P/N
- - -	BYPASS, TONE ALARM PCB ASSEMBLY	402975
C1	Not used	- -
C2	Cap, pc, .l uF, 2%, 1OOV	C30007
C3	Cap, pc, .1 uF, 2@, 1OOV	C30007
CR1	Diode, si, 1N4148	CR4148
CR2	Diode, si, 1N4148	CR4148
CR3	Diode, si, 1N4148	CR4148
CR4	Diode, si. 1N4148	CR4148
CR5	Diode, si, 1N4148	CR4148
J1	Not used	- - -
J2	Recept, 8 pin, M, pc	J00210
P1	Not used	- - -
P2	Plug, 8 pin, F, molex	PO0210
Q1	Xstr, NPN, 2N4123	Q41230
R1	Res, 1OK, 1/4W, 5%	R20103
R2	Res, 27K, 1/4W, 5%	R20273
R3	Res, 1OK, 1/4W, 5%	R20103
R4	Res, 1OK, 1/4W, 5%	R20103
R5	Res, 1.5 meg, 1/4W, 5%	R20155
R6	Res, 1.5 meg, 1/4W, 5%	R20155
R7	Res, 1.5 meg, 1/SW, 5%	R20155
R8	Res, 1.5 meg, 1/4W, 5%	R20155
R9	Res, 1.5 meg, 1/4W, 5%	R20155
R1O	Res, 1.5 meg, 1/4W, 5%	R20155
R11	Res, 22K, 1/4W, 5%	R20223
R12	Res, 22K, 1/4W, 5%	R20223
U1	IC, dual D ff, 4013	U4013E
U2	IC, op amp, 3140T	U3140T
U3	IC, quad op amp, 324	U00324
U4	IC, dual D ff, 4013	U4013E
W1	Double 14 pin dip conn cable	402973